

Will U.S. Congress finally approve nuclear cooperation with China?

by Marsha Freeman

On Jan. 12, President Bill Clinton signed the formal certifications and reports required by U.S. law to implement the U.S.-China Agreement for Peaceful Nuclear Cooperation, which has languished since 1985. The President's reports were then forwarded to Congress, and the Senate now has 30 working days to approve the report, and unblock U.S.-China nuclear cooperation.

The statement released on Jan. 15 by the White House Office of the Press Secretary said, "This agreement serves U.S. national security and economic interests, and demonstrates that the administration's policy of engaging China is achieving concrete results." But, various pieces of anti-China legislation are already being prepared for introduction into Congress, in an attempt to destabilize the strategically critical U.S.-China relationship.

Progress on China meeting American concerns in sharing civilian nuclear technology was announced at the Oct. 29 summit in Washington between Presidents Clinton and Jiang Zemin. If the 1985 agreement were finally implemented, there could be full cooperation between the two nations, in nuclear research, development, and the purchase by China of American nuclear power plants. The world's most experienced nuclear energy user, and the world's largest energy-short nation, would begin to collaborate in this crucial technology.

Since the Eisenhower initiative in the 1950s to share nuclear technology internationally through the Atoms for Peace program, the push by the Bertrand Russell one-world crowd for global control of nuclear energy through the United Nations, has made the bogeyman of the proliferation of nuclear weapons the avenue through which technological apartheid, or the denial of access of technology to developing nations, has been enforced.

The denial of U.S. nuclear technology to China has been promoted by the "left-wing" anti-nuclear crowd, and the "right-wing" anti-(Communist)-China crowd, as punishment for alleged violations by China of the UN-sponsored international non-proliferation regime, because of its trade with Pakistan and Iran. Considering the fact that China is buying nuclear energy power plants from Russia, Canada, and France to meet its energy needs, this policy has been a failure, even on its own terms. It is not China that has been isolated by the American sanctions policy, but the United States.

China goes nuclear

China has no choice but to dramatically expand its production of energy, and most importantly electricity, if it is to meet its projected 8% per year rate of overall economic growth into the next century, or even meet its current needs. The Ministry of Electric Power estimates that 15-20% of China's present demand for electricity cannot be met, and that an estimated 100 million Chinese have no access to electricity.

An 8% per year rate of overall economic growth will require a growth rate of at least that in electricity generation. This will require China to *double* its electricity capacity, *every decade*. In 1996, China had 236,000 megawatts of installed electric generating capacity. By the year 2010, it plans to have more than doubled that, to 500,000 MW.

There is no possibility that China could meet its growing energy needs without nuclear technology. China is the largest producer and consumer of coal in the world, but the best Chinese coal, in terms of both accessibility and quality, is in remote areas of northern China, far from the urban commercial centers in its southern regions. Already, 40% of China's railroad capacity is dedicated to hauling more than a billion tons of coal per year.

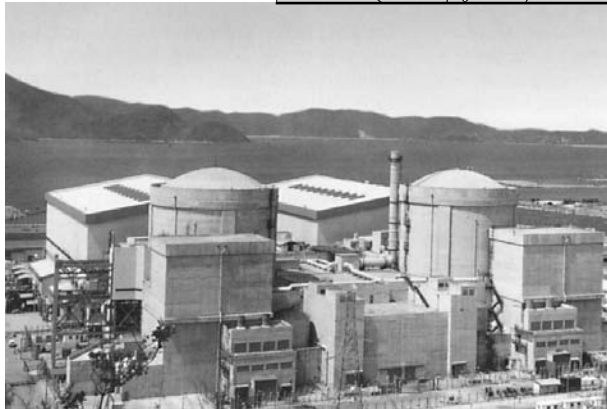
While China has extensive resources that can be developed to produce hydroelectric power, many sites are also significant distances from the coastal regions, where electricity demand is the highest. Although China is the world's sixth-largest oil producer, since 1993, China has been a net importer of petroleum.

When China embarked on its dramatic economic growth plan in the late 1970s, the leadership of the country quickly realized that it would have to "go nuclear." Starting with a small scientific cadre, and limited machine-tool base from which to "grow" an indigenous nuclear industry, China turned to the international nuclear manufacturers to supply the large, baseload power plants it needs to meet growing demand.

In May 1978, the executive director of the American Nuclear Society visited China, and, after discussions with Chinese nuclear engineers, concluded, "It is clear that China will acquire probably two or three reactors from the West within the current eight-year plan." On Dec. 4, 1978, the French and Chinese trade ministers signed a seven-year trade agreement totalling \$14 billion, of which \$4.5 billion was for two Wes-

Nuclear power in China

Below: China's Guangdong nuclear plant at Daya Bay. The first two Guangdong units were begun in 1986, with the participation of Hong Kong, France, and the United Kingdom.



China's nuclear construction plans include two 600-MWe units at Qinshan site, two 950-MWe units at the Lingao site, near the existing Guangdong plants. Other sites under discussion are two 1,000 MWe plants at Wufangdian, possible sites in Fujian, one unit on the island of Hainan, up to four units in Jiangxi, two to four units in Zhejiang, and two units at the port city Lianyungang.

tinghouse-licensed Framatome reactors.

These two French-built nuclear reactors, at southeastern Daya Bay, are now on line, with a total capacity of 1,800 MW. In addition, China has a 300 MW reactor near Shanghai at Qinshan, which was designed in China, and was built with 70% of its components coming from Chinese sources.

Under construction at Qinshan, is the first of two next-generation Chinese-built reactors, with a capacity of 600 MW each. France has a contract for an additional two reactors at Ling'ao, of 985 MW each. Canada and Russia have each contracted to build two reactors, at Qinshan and Lianyungang, respectively.

When these eight new power plants are completed, over the next decade, China will have over 10,000 MW of nuclear capacity. By the year 2010, the plan is to double that capacity, and by the year 2020, to raise that two and a half times again, to 50,000 MW, which is about half the capacity that nuclear power plants provide in the United States. To accomplish that growth rate, in the short term, China will have to order two additional nuclear units approximately every year.

By the year 2050, there are estimates that China could meet as much as 20% of its electricity needs through nuclear power, which would amount to about 285,000 MW of capacity, compared to the 102,000 MW currently on line in the United States. China would be, by far, the world's largest producer of nuclear energy.

Why China has no U.S. nuclear technology

Following President Richard Nixon's opening to China in 1972, President Jimmy Carter sent a high-level delegation there in 1978. The delegation was unfortunately led by James Rodney Schlesinger, the head of the Department of Energy and former geostrategist for the RAND Corporation, who, as Energy Secretary, was heading up the Carter administration's plan to stop nuclear energy development in the United States, and substitute energy "conservation" and low-technology "renewable" energy.

An article in *Nuclear Industry* magazine in December 1978, concerning the trip to China by Schlesinger and a 31-man delegation, reported that the Chinese had a wish-list of energy-related hardware, including "possibly the first of up to 10 or more nuclear reactors in the 900 MWe range that could be supplied by U.S. manufacturers by the end of the century."

One of the obstacles faced by China in acquiring U.S. nuclear technology, the article stated, was that it had not signed the nuclear Non-Proliferation Treaty, very important to the anti-nuclear Carter White House. In 1978, the U.S. Congress also passed, and President Carter signed, the Percy-Glenn bill, or the Nuclear Non-Proliferation Act, which had more restrictive requirements than did the international treaty. Another obstacle the United States faced in opening increased trade with China, was its recognition of Taiwan.

According to the article, the agenda of Schlesinger's trip to China included discussion of coal production technology, hydroelectric facilities, "exploitation of renewable resources, such as solar, biomass, wind, and wave power, as well as joint programs in high-energy physics, nuclear physics, and magnetic fusion." Not surprisingly, considering Schlesinger's domestic energy policy, nuclear energy was apparently not even mentioned.

There was a report from Bangladesh mentioned in the *Nuclear Industry* article, that Chinese Vice Premier Keng Piao had offered to help Pakistan in the construction of a nuclear fuel reprocessing plant during the summer of 1978. Like its neighbor India, Pakistan had started work on its plan to develop nuclear energy technology. Like both India and China, Pakistan may well have wanted to also develop a nuclear weapons capability.

Pakistan (like India) is not a signatory to the Non-Proliferation Treaty, and its nuclear facilities are not under the control of the international non-proliferation regime. A panoply of technology-control treaties—dealing with nuclear energy, rocket and missile technology, and anything in either area that can be considered to be "dual use" technology—have been used by geopoliticians to prevent the transfer of technology to developing nations. Such technological apartheid has been employed for 20 years, in dealing with the China-Pakistan nuclear question, to stop U.S. cooperation with China.

Three days after Secretary Schlesinger returned from China in December 1978 (fellow geostrategist and Carter National Security Adviser Zbigniew Brzezinski had been there the previous spring), the United States revised its policy, in order to allow the sale of "defensive" arms to China. It was fine to sell military equipment to China, these members of the Trilateral Commission reasoned, because that would, in their minds, be a bulwark against the Soviet Union. But, the United States would not participate in supplying the energy desperately needed for growth in the Chinese economy.

Similarly, the anti-nuclear policy was clear from remarks made by British agent Henry Kissinger, who threatened Pakistan's Prime Minister Zulfikar Ali Bhutto, shortly before Bhutto was hanged, to make a "terrible example" of him should that nation pursue the development of advanced technologies such as nuclear energy.

A new opportunity for nuclear cooperation came in 1985, when President Ronald Reagan went to China. The "Agreement for Cooperation Between the Government of the United States of America and the Government of the People's Republic of China Concerning Peaceful Uses of Nuclear Energy" was signed on July 23, 1985, by U.S. Energy Secretary John Herrington and China's Premier Li Peng.

It is a most extraordinary agreement. The Science and Technology agreements signed between President Nixon and Soviet General Secretary Leonid Brezhnev in 1972 were five-year agreements, to be reviewed and, if agreeable to both sides, extended for five-year intervals. But the nuclear agree-

ment with China was to extend for 30 years. The U.S.-China nuclear agreement was transmitted to the U.S. Senate the day after it was signed, and referred to the Foreign Affairs Committee for review.

Mutual respect for sovereignty

In his letter of transmittal to the Senate, President Reagan stated that the agreement is "the first peaceful nuclear cooperation agreement with a Communist country and the only such agreement with another [non-European] nuclear-weapon state."

"During the last several years," he continued, "the People's Republic of China has developed ambitious plans for the installation of a substantial number of nuclear power stations. The proposed agreement reflects the desire of the Government of the United States and the Government of the People's Republic of China to establish a framework for peaceful nuclear cooperation.

"During the period of our negotiations and discussions, China took several important steps that clarified its non-proliferation and nuclear export policies. Premier Zhao has made important statements of China's non-proliferation policy that makes clear that China will not contribute to proliferation. Those statements have been endorsed by the National People's Congress, thereby giving them official status.

"Based on our talks with the Chinese, we can expect that China's policy of not assisting a non-nuclear weapon state to acquire nuclear explosives will be implemented in a manner consistent with the basic non-proliferation practices common to the United States and other suppliers. Further, in conjunction with China's membership in the International Atomic Energy Agency (IAEA), effective Jan. 1, 1984, China has said that it will require IAEA safeguards on its future nuclear export commitments to non-nuclear weapons states.

"This agreement will have a significant, positive impact on overall U.S.-China relations. It will provide the United States and its companies an opportunity to participate in another aspect of China's energy programs, with possibly substantial economic benefit."

In the introductory "whereas" clauses, the agreement itself states that the two governments, "desiring to establish extensive cooperation in the peaceful uses of nuclear energy on the basis of mutual respect for sovereignty, non-interference in each other's internal affairs, equality and mutual benefit," stipulate that "transfers of information, technology, material, facilities and components under this agreement may be undertaken directly between the parties or through authorized persons."

The agreement also broadly states that "transfers of information and technology . . . may be accomplished through various means, including reports, databanks, computer programs, conferences, visits and assignments of persons to facilities."

Covered under the agreement are:

1. research, development, experiment, design, construction, operation, maintenance, and use and retirement of reactors and nuclear fuel fabrication technology;

2. the use of material in physical and biological research, medicine, agriculture, and industry;

3. nuclear-fuel-cycle research, development, and industrial application to meet civil nuclear needs, including multi-lateral approaches to guaranteeing nuclear fuel supply and appropriate techniques for the management of nuclear waste;

4. health, safety, environment, and research and development related to the foregoing;

5. assessing the role nuclear power may play in international energy plans.

It concludes: "This agreement shall enter into force on the date of mutual notifications of the completion of legal procedures by the parties and shall remain in force for a period of thirty years."

Congress sabotages nuclear agreement

In response to reports of Chinese help to Pakistan's nuclear program, on Dec. 16, 1985, a Joint Resolution was passed by the House and Senate, which reads in part:

"Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That (a)(1) the Congress does not favor the Agreement for Cooperation Between the Government of the United States of America and the Government of the People's Republic of China Concerning Peaceful Uses of Nuclear Energy, done on July 23, 1985. . . .

(2)(b) "Notwithstanding any other provision of law or any international agreement, no license may be issued for export to the P.R.C. of any nuclear material, facilities, or component subject to the Agreement, and no approval for the transfer or retransfer to the P.R.C. of any nuclear material, facilities, or components subject to the Agreement shall be given, until . . . [the agreements are] effective in ensuring that any nuclear material, facilities, or components provided under the Agreement shall be utilized solely for intended peaceful purposes" and that the P.R.C. "has provided additional information concerning its nuclear nonproliferation policies."

The resolution further states that these restrictions shall stand "until the President has submitted to the Speaker of the House of Representatives and the chairman of the Committee on Foreign Relations of the Senate a report detailing the history and current developments in the nonproliferation policies and practices of the P.R.C. The report . . . shall be submitted in unclassified form with a classified addendum."

In response to the June 1989 Chinese government actions in Tiananmen Square, in February 1990 Public Law 101-246 was passed by Congress, dealing with U.S.-China trade. It includes a section on the question of nuclear cooperation, which states that "Any application for a license under the Export Administration Act of 1979 for the export to the People's Republic of China for use in a nuclear production or

utilization facility of any goods or technology which . . . could be of significance for nuclear explosive purposes, or which, in the judgment of the President, is likely to be diverted for use in such a facility, for any nuclear explosive device, or for research on or development of any nuclear explosive device, shall be suspended."

It further includes the suspension of a license for export to the P.R.C. of any nuclear material, facilities, or components, until "The President certifies to the Congress that the People's Republic of China has provided clear and unequivocal assurances to the United States that it is not assisting and will not assist any nonnuclear-weapon state, either directly or indirectly, in acquiring nuclear explosive devices or the materials and components for such devices."

Since the use of nuclear technology for "acquiring nuclear explosives" has been denied by both the importing country, i.e., Pakistan or Iran, and by the exporter, i.e., China, and since "dual use" technologies are, by definition, usable in both civilian and military application, whether China has adhered to non-proliferation regimes is a political, not a technical, determination.

The Clinton administration initiative

Although Commerce Secretary Ron Brown's approach to engagement and trade with China would have reopened the question of U.S. nuclear trade earlier, his death, along with the 1994 takeover of Congress by the Gingrichites and Congressional guerrilla attacks on U.S.-China cooperation, delayed the initiative.

By 1996, Clinton administration diplomacy with China was on a fast track, with the nuclear issue an important part of the agenda. In May 1996, the United States decided against imposing sanctions against China for the export to Pakistan of ring magnets, when, on May 11, Beijing made an oral agreement, or pledge, not to export such equipment to "unsafeguarded facilities," i.e., facilities that do not come under the IAEA regime. This was seen from the U.S. side as a shift by China toward a willingness to compromise, to allay non-proliferation concerns.

On Aug. 3, 1996, the China National Nuclear Corp. announced that China should be capable of producing 600 MW nuclear power plants by the turn of the century. The spokesman, Shen Wenqan, also said that most of the components for the plants that were needed immediately were being imported (from Canada and Russia), because of urgent power demands. It was increasingly clear that China was going nuclear, whether the United States was involved or not.

Later that month, on Aug. 22, U.S. Nuclear Regulatory Chairman Dr. Shirley Ann Jackson stated, after a visit to China where she met nuclear industry officials, that there was a "lot of interest in U.S. technology," and that China was in need of "putting in place as comprehensive as possible regime of control over non-safeguarded facilities," which the United States could provide.

At the beginning of November 1996, Undersecretary of State Lynn Davis made a trip to China, preceding Secretary of State Warren Christopher's trip there later that month, to discuss how the 1985 nuclear agreement might be implemented. Arms Control and Disarmament Director John Holum had recently visited Beijing, and Deputy Assistant Secretary of State Robert Einhorn held talks in Washington with the Chinese on non-proliferation concerns.

On Nov. 6, 1996, the *Washington Post* reported that, during Davis's trip to Beijing, the Chinese government, apparently bowing to the one-world lobby's demands in order to both improve its relations with the U.S. and to gain access to advanced nuclear technology, suggested that it might be willing to cancel its proposed sale of a "uranium conversion facility" to Iran. Although China had notified the IAEA of its intention to proceed with the sale, in line with international non-proliferation guidelines, the United States had been trying to convince China to cancel the deal anyway. The Chinese had indicated that, in any case, Iran's inability to pay for the plant could halt the deal.

On Nov. 9, Holum told reporters in Washington, according to the *Washington Times*, that the United States and China were "making progress" in cancelling any Chinese nuclear deal with Iran. He reported that the Chinese had "come a considerable distance" in not selling weapons-related technology around the world. He said, "We still have major concerns and we have different perspectives on things. It is unlikely that the United States and China will ever see things exactly the same. But I think the progress has been rather dramatic."

Following meetings with Chinese leaders, on Nov. 20, 1996, Secretary Christopher announced at a press conference in Beijing that "both sides will work for an early implementation of the 1985 U.S.-China Agreement for Peaceful Nuclear Cooperation."

Diligent work over the past year has brought that possibility to fruition.

To satisfy purely political concerns, and to try to mollify political opposition to U.S.-China trade, in 1992 China signed the Nuclear Non-Proliferation Treaty. In 1994, China signed on to the Missile Control Technology Regime guidelines. Last year, China adopted a moratorium on nuclear testing, signed the Comprehensive Nuclear Test Ban Treaty, and ratified the Chemical Weapons Convention. Most recently, and just before the Clinton-Ziang summit, China joined the Zangger Committee of nuclear suppliers, which maintains a "trigger list" of nuclear-related export items subject to international safeguards.

At the Clinton-Ziang summit, the U.S. President announced that he would send a report to Congress certifying that China has met, or is in the process of meeting, non-proliferation concerns, and that this would open the door to trade in nuclear technology. Congress will have 30 working days to approve the report.

China has made clear its preference for U.S. nuclear technology.

What the U.S. has to offer

In the next few years, China will have operating nuclear power plants from France, Canada, and Russia, plus its own indigenous design. All of these plants have unique operating and maintenance procedures, and technical and training requirements. Considering the magnitude of nuclear energy production that China is planning for the next decades, the next step should be to settle on one family of reactors, and take that as a standard for the tens of thousands of megawatts planned for the future.

For the past decade, the three U.S. nuclear manufacturers—General Electric, Westinghouse, and ABB Combustion Engineering—have been designing advanced, standardized nuclear power plants, to replace the customized designs used up until now in the United States.

American manufacturers have taken their cue from the French nuclear industry, which is based on standardized designs. The French have built thirty-four 900 MW units and twenty 1,300 MW units, which supply 75% of that country's electricity. They have cut construction time from seven to five years, and the cost is one of the lowest in the world.

In the United States, ABB Combustion Engineering and General Electric have designed 1,350 MW reactors, which have been approved by the Nuclear Regulatory Commission. It is expected that the Westinghouse 600 MW design will be approved for certification during 1998.

All of the new designs are described as "passively safe," in that stored water and gravity are employed for safety functions, rather than a system of pumps and motors that move the water to cool the reactor, and which requires operator initiation. The designs are more compact, easier to maintain, and take less time to build.

General Electric has already built two of its advanced boiling water reactors in Japan, and it has a contract to build a pair of units for Taiwan Power. Two of the advanced ABB Combustion Engineering pressurized water reactors are currently under construction in South Korea.

But more important than any technical or trade considerations, China's leaders have made very clear that they consider their nation's relations with the United States to be the defining, strategic one for the next century. What better way to increase trust in this new partnership than to put some of the best minds in both countries together to solve some of mankind's most recalcitrant problems, such as providing the energy foundation for economic and cultural advancement.

If the United States casts off the anti-growth, anti-technology cloak of the last 30 years, and decides it will no longer be a "rogue" nuclear nation that is not participating in China's nuclear program, cooperation will help lay the basis for change in China, and also, at home, the possibility for the resurrection of the U.S. nuclear industry.